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ABSTRACT

Fourty-four teacher education majors enrolled in a practicum entitled "Diagnosis and Remediation of Reading Disability" were matched with 44 tutees ranging from first to eighth grade. The preservice teachers were studied to determine the relationship of their learning style variables to their performance and their attitude toward the practicum, both in a simple correlation and in combination with their individual academic achievement and attitudes, and their tutee's intelligence. Several measurement instruments were used. No significant correlation was found between learning style variables and performance in a reading practicum. A positive correlation existed between attitude toward the practicum and the learning style variable of clear organization as a condition of learning. College sophomore grade point average (GPA) and two learning styles--listening as a mode of learning, and setting one's own goals as a condition of learning--were the most significant predictors of performance in the practicum. The most significant set of variables in predicting performance and attitude toward the practicum remained consistent when the tutee's intelligence and the teacher's college sophomore GPA and composite score on the American College Test were controlled. (JD)

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RELATIONSHIP OF THE PRESERVICE TEACHERS' LEARNING STYLES TO PERFORMANCE AND ATTITUDE IN A PRACTICUM SITUATION WITH THE VARIABLES OF TEACHERS' ACADEMIC ACHIEVEMENT AND APTITUDE AND THE STUDENT'S INTELLIGENCE

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The practicum entitled Diagnosis and Remediation of Reading Disability emphasizes a criterion-referenced, diagnostic/prescriptive model that pairs the teacher education student with one or more children to be tutored. Each child's reading behavior is analyzed using a number of subjective diagnostic measures. Preservice teachers are then required to develop objectives which will influence appropriate instructional sequences as well as continually evaluate instructional effectiveness in relation to student progress.

In addition, the reading practicum is a means of providing the teacher education major highly supervised contact with students thus assuring that preservice teachers develop confidence, poise, and teaching skills (Aldrige, et al., 1981; Braam & Oliver, 1970; Fritschel, 1975; Guszak & Mills, 1973). The preservice teachers' performance, evaluated continually through direct observations, video taped sessions, and a practicum rating scale, may be affected by factors other than classroom training and experiences (Johnstone, 1977). Such variables as learning style, academic achievement, aptitude, and attitude, as well as the tutee's intelligence, may also affect the preservice teacher's performance in a reading practicum.

An important assumption of modern education is that there is an interaction effect among teaching styles, learning styles, the environment in which learning takes place, and the instructional materials utilized (Barbe & Swassing, 1979; Claxton & Ralston, 1978; Dunn, 1978; Gregorc, 1979a). For example, Brooks (1979) reports that teaching and learning styles influence interpersonal behavior as well as value judgements related to intelligence and competence. Embedded with-

in the learning style theory is the basic educational principle that students vary in their approach to learning, and that no single instructional process provides optimal learning for all students (Dunn & Dunn, 1979; Emmer, 1974; Turner, 1979; Young, 1977).

Dunn and Dunn (1974) assert that the provision of alternative learning experiences for students who learn in different ways facilitates increased academic achievement. Style sensitive teaching encourages changes in course design, in instructional materials, in teaching strategies, and in testing procedures. These features capitalize on student strengths, and thereby accommodate instructional weaknesses. Ultimately, the application of the learning style theory at the preservice teacher level will provide an avenue for upgrading teacher preparation standards.

Statement of the Problem

The problem was to determine the relationship of preservice teachers' learning styles to their performance in a reading practicum and their attitudes toward the practicum both in a simple correlation and when considered in combination with the following variables: tutee's intelligence, teacher's academic achievement, and teacher's aptitude.

Questions to be Answered

The following research questions were investigated:

1. Will there be a significant correlation between learning styles and performance in a reading practicum?

2. Will there be a significant correlation between learning styles and attitudes in a reading practicum?

3. What combination, if any, of the following variables will most effectively predict performance of preservice teachers in a reading practicum: tutee's intelligence, teacher's academic achievement, aptitude, and learning style?

4. What combination, if any, of the following variables will most effectively predict attitudes of preservice teachers in a reading practicum: tutee's intelligence, teacher's academic achievement, aptitude, and learning style?

5. When the variables of preservice teacher's academic achievement and aptitude, as well as the tutee's intelligence are controlled, will the learning style of the preservice teacher add significantly to the prediction of performance?

6. When the variables of the tutee's intelligence, as well as the preservice teacher's academic achievement and aptitude are controlled, will the learning style of the preservice teacher add significantly to the prediction of attitude?

Definition of Terms

The following operational definitions were used in the study:

1. Preservice Teacher: A preservice teacher is an undergraduate student enrolled in the field of teacher education in a university setting.

2. Tutee: A tutee is a student attending the reading practicum for individual tutoring sessions structured to overcome reading disabilities or to offer enrichment activities in reading.

3. Learning Style: Learning style refers to two categories which are conditions and mode. These categories consist of a total of 12 subscales that contribute to adequate adjustment to the teaching-

learning environment. These subscales focus on factors that affect learning (Canfield, 1980).

4. Intelligence: Intelligence refers to an individual's ability to learn, solve, and understand problems, as well as the capacity to reason, judge, and retain knowledge (Slosson, 1974).

5. Attitude: Attitude is the predisposition to react with feelings toward the reading practicum experience.

6. Criterion-Referenced, Diagnostic/Prescriptive Model: The criterion-referenced, diagnostic/prescriptive model stresses careful analysis of each pupil's status and needs by utilizing tests which identify reliably and validly the established level of performance by an individual regardless of the norm. Appropriate instructional sequences are implemented based on the diagnostic findings (Wollenberg, 1983).

7. College Sophomore Grade Point Average: College sophomore grade point average is an average scholastic score indicating success in academics based on 53 credit hours. The average is computed according to the following scale: A = 4 points, B = 3 points, C = 2 points, D = 1 point, F = 0 points.

Measuring Instruments

The following instruments were utilized in this study: Learning Styles Inventory, American College Test, Slosson Intelligence Test, Practicum Semantic Differential, and Practicum Rating Scale.

Procedure for Collection of Data

Access to student records was secured from the Dean of Records and Registration of the university in order to obtain the American College

Test composite score and college sophomore grade point average for the selected preservice teachers. Each preservice teacher enrolled in the reading practicum was requested to sign human subject release forms for participation in the study during the first week of the course.

The Learning Styles Inventory and the Practicum Semantic Differential were administered to all the preservice teachers enrolled in the practicum during the first week of November. Tutoring competencies of preservice teachers were obtained by utilizing the Practicum Rating Scale. The university professors and researcher rated each preservice teacher to obtain an overall performance score.

The chronological age of each tutee attending the reading practicum was obtained from the consent form signed by the parents. The Slosson Intelligence Test was administered to all tutees within the first week of tutoring. Parental consent and child consent were secured prior to administering the intelligence test. The statistical techniques utilized were the Pearson product-moment correlation coefficient and step-wise multiple regression. The Pearson product-moment correlation was used to test questions one and two. Questions three, four, five, and six were tested with data derived from the step-wise multiple regression. The .05 significance level was employed for testing statistical hypotheses. The design was descriptive and empirical ex post facto in nature.

Selection and Setting of Subjects

Selection

The preservice teacher subjects consisted of 44 teacher education majors in a university setting. Eligibility for selection was the actual completion of the reading practicum.

The tutee subjects consisted of 44 elementary students ranging from first grade to eighth grade who attended the reading practicum. The research took place during the fall semester of 1983 in a public land-grant university in Mississippi.

Setting

The preservice teacher subjects were enrolled in a practicum entitled Diagnosis and Remediation of Reading Disability, a three semester hours credit course with prerequisites of two basic skills courses, Reading Fundamentals and Teaching of Reading. There were five major objectives and five generic competencies to be met in the course as delineated on the course syllabi. The objectives were: (1) to provide one-to-one and small group tutoring; (2) to develop use of behavioral objectives; (3) to increase competencies in daily lesson and long-term planning of instructional programs; (4) to develop familiarity with a wide variety of teaching approaches and materials; and (5) to stress diagnostic/prescriptive evaluation of pupil progress as an on-going teacher function. The generic competencies were: (1) to diagnose the entry knowledge and/or skill of students for a given set of instructional objectives using diagnostic tests, teacher observations, and student records; (2) to select, adapt, and/or develop instructional materials for a given set of instructional objectives and student learning needs; (3) to select, develop, and sequence related learning activities appropriate for a given set of instructional objectives and student learning needs; (4) to establish rapport with students in the classroom by using verbal and/or visual motivation devices; and (5) to present directions for carrying out an instructional activity.

The course included five class periods and incorporated orientation, lectures concerning administration and interpretation of diagnostics, behavioral objectives, long-term goal planning, principles of tutoring, and background information of the children. The remainder of the semester was spent tutoring one or more children in hourly sessions twice a week. The preservice teachers prepared lesson plans which were reviewed by a professor prior to or during the tutoring sessions. A final report was written for future tutoring sessions and kept on file for subsequent tutors. Preservice teachers were evaluated through individual conferences, direct observation, the quality of daily lesson planning, and results of performance on the Practicum Rating Scale.

Results

Findings of this study indicated:

1. No significant correlation was found between learning style variables and performance in a reading practicum.

2. A significant positive correlation existed between attitude toward the reading practicum and the learning style variable of clear organization as a condition of learning.

3. The predictor set of variables that was considered most significant in performance included college sophomore grade point average and the two learning style variables of listening as a mode of learning and setting one's own goals as a condition of learning. These variables accounted for 30.50 percent of the variation in performance.

4. The most significant set of variables in predicting attitude

toward a reading practicum consisted of the composite score on the American College Test and the two learning style variables of clear organization as a condition of learning and listening as a mode of learning. These variables together explained 32.26 percent of the variation in attitude.

5. The most significant set of variables in predicting performance remained consistent when the variables of the tutee's intelligence and the preservice teacher's college sophomore grade point average and composite score on the American College Test were controlled. The predictor set of variables consisted of college grade point average and the two learning style variables of listening as a mode of learning and setting one's own goals as a condition of learning. These variables accounted for 31.34 percent of the variation in performance.

6. The most significant set of variables in predicting attitude toward a reading practicum remained consistent when the variables of the tutee's intelligence and the preservice teacher's college sophomore grade point average and composite score on the American College Test were controlled. The predictor set of variables included the composite score on the American College Test and the two learning style variables of clear organization as a condition of learning and listening as a mode of learning. These variables explained 36.70 percent of the variation in attitude.

Implications

The findings of this study revealed college sophomore grade point average and two learning style variables to be related to performance in a reading practicum. Listening as a mode of learning and setting one's

own goals as a condition of learning were the two learning style variables. Analyses of data disclosed college sophomore grade point average as the number one predictor of performance. This finding supports the literature which denoted grade point average as being the number one predictor of academic success (Borup, 1971; Halpin, Halpin, & Schaer, 1981; Hamlin, 1974; Kelly, Holloway, & Chapman, 1981; Lenning, Munday, Johnson, Vander Well, & Brue, 1974; Wiviott & Pollard, 1974). This finding also substantiates the results reported by Tiller (1981) and Mehrens and Rogers (1970) in their studies relating college grade point average as a predictor of subsequent performance. However, grade point average was not the number one predictor variable of achievement in a basic reading skills course reported by Posey (1983) and Eckert (1983). Additionally, grade point average failed to be noted by Johnstone (1977) and Wingard and Williamson (1973) as being related to performance in practicum experiences.

The learning style variable of listening as a mode of learning was significantly correlated with performance. This finding is congruent with findings reported by Phillips (1982) and Ommen, Brainard, and Canfield (1979). Their findings revealed that older students exhibit preferences for listening and reading as modes of learning. An additional explanation of the significant correlation of listening and performance can be attributed to the course format and requirements. Because students are not provided with a textbook outlining tutoring procedures, listening becomes an essential learning mode. Consequently, those students who prefer listening as a mode of learning are more likely to have a higher rate of success in a reading practicum.

A significant correlation was found between setting one's goals as a condition of learning and performance. This finding supports the research conducted by Posey (1983). Practicum students are required to establish long-term goals as well as daily objectives. Thus, those students exhibiting a preference for setting one's own goals as a condition of learning tend to have a higher success rate in a practicum experience.

Other findings of this study revealed the composite score on the American College Test and the learning style variables of listening as a mode of learning and clear organization as a condition of learning to be positively related to attitude toward a reading practicum. Analyses of data revealed the learning style variable of clear organization as the number one predictor of attitude toward a practicum experience. A review of the literature failed to substantiate this finding. However, due to course requirements, preservice teachers are expected to gather diagnostic data, plan a remediation program based on individual needs, and successfully implement the appropriate instructional sequences. Consequently, organizational skills are needed in diagnostic/prescriptive teaching. Those preservice teachers who prefer clear organization as a condition of learning would exhibit a more favorable attitude toward the reading practicum.

The composite score on the American College Test was the second most powerful predictor of attitude. In the findings of Domino (1971), Farr (1971), and Pizzo (1981), attitude and aptitude were found to be correlated. Students who achieved academic success portrayed more favorable attitudes toward the learning experience. The American

College Test was found to be a powerful predictor of academic success by Carney and Geis (1981), Eckert (1983), Kaplan (1982), Rowan (1978), and Zarate (1976). Therefore, those preservice teachers with higher composite scores on the American College Test exhibited more positive attitudes toward the reading practicum.

The learning style variable of listening as a mode of learning was also found as a significant predictor of attitude. As previously stated, preservice teachers with a preference for listening as a mode of learning perform more effectively in the practicum. Thus, those preservice teachers who prefer listening as a mode of learning tend to exhibit more positive attitudes toward the practicum.

The significant predictors of performance in a reading practicum are college grade point average and the learning style variables of listening as a mode of learning and setting one's own goals as a condition of learning. The significant predictors of attitude toward a reading practicum are clear organization as a condition of learning, the composite score on the American College Test, and listening as a mode of learning. These findings corroborate those of Johnstone (1977) who contended that performance in a practicum may be affected by factors other than classroom training and experiences. The findings of this study revealed that certain selected variables predicted performance and attitude in a reading practicum. These findings may be utilized to modify the reading practicum and thus effectively integrate the theory of teaching with the act of teaching. Finally, the inclusion of the significant variables into the academic systems of planning and advising maximizes the potential of preservice teachers.

Table 1

Simple Correlation of Learning Style with Performance and Attitude

Learning Style		Performance r	Attitude r
Mode of Learning			
Listening		.24	-.24
Reading		.26	-.14
Iconics		-.28	.19
Direct Experience		-.22	.18
Conditions of Learning			
Affiliations:	Working with Peers	-.13	.12
Affiliations:	Working with Instructor	-.03	.11
Structure:	Clear Organization	-.22	.35*
Structure:	Detailed Information on Assignments	-.08	.07
Achievement:	Setting One's Own Goals	.19	-.20
Achievement:	Working Independently	.04	-.23
Eminence:	Competition	.12	-.20
Eminence:	Discipline and Order	.05	.04

*Significant at .05 level ($r \geq .30$)

Table 2

Multiple Correlation of Tutee's Intelligence, Preservice Teachers' Sophomore Grade Point Averages, ACT Scores, and Learning Styles with Performance

Variables	Multiple R	R^2	R^2 Change	Simple r	F
Sophomore Grade Point Average	.4195	.1760	.1760	.42	14.47**
Mode of Learning: Listening	.5015	.2515	.0755	.24	5.21*
Conditions of Learning: Achievement (Setting One's Own Goals)	.5523	.3050	.0535	.19	5.90*
Conditions of Learning: Eminence (Competition)	.6038	.3645	.0596	.12	3.54
Conditions of Learning: Eminence (Discipline and Order)	.6287	.3953	.0307	.05	1.60
Conditions of Learning: Achievement (Working Independently)	.6375	.4064	.0111	.04	1.20
Conditions of Learning: Affiliations (Working with Peers)	.6500	.4220	.0160	-.12	1.00

*Significant at .05 ($F \geq 4.05$, df 1 and 42)
**Significant at .01 ($F \geq 7.21$, df 1 and 42)

Table 3

Multiple Correlation of Tutee's Intelligence, Preservice Teachers' Sophomore Grade Point Averages, ACT Scores, and Learning Styles with Attitude

Variables	Multiple R	R^2	R^2 Change	Simple r	F
Conditions of Learning: Structure (Clear Organization)	.3514	.1235	.1235	.35	7.13*
ACT Score	.4614	.2129	.0894	.20	7.08*
Mode of Learning: Listening	.5679	.3226	.1097	.24	6.25*
Tutee's I.Q.	.5982	.3578	.0353	.29	1.61
Conditions of Learning: Affiliation (Working with Peers)	.6211	.3858	.0280	.12	.80
Conditions of Learning: Achievement (Working Independently)	.6293	.3960	.0102	-.23	.62

*Significant at .05 level ($F \geq 4.05$, df 1 and 42)

Table 4

Relationship of Preservice Teachers' Learning Styles with Performance When Variables of Preservice Teachers' Sophomore Grade Point Averages and ACT Composite Scores and Tutee's Intelligence are Controlled

Variables	Multiple R	R^2	R^2 Change	Simple r	F
Forced					
Tutee's I.Q.	.0586	.0034	.0034	-.06	.10
Sophomore Grade Point Average	.4196	.1760	.1726	.42	11.81**
ACT Score	.4276	.1829	.0068	.21	.05
Open					
Mode of Learning: Listening	.5060	.2561	.0732	.24	4.65*
Conditions of Learning: Achievement (Setting One's Own Goals)	.5598	.3134	.0573	.19	5.54*
Conditions of Learning: Eminence (Competition)	.6131	.3759	.0625	.12	3.28
Conditions of Learning: Eminence (Discipline and Order)	.6312	.3984	.0226	.05	1.12
Conditions of Learning: Achievement (Working Independently)	.6405	.4102	.0118	.04	1.05
Conditions of Learning: Affiliation (Working with Peers)	.6516	.4245	.0143	-.13	.84

*Significant at .05 level ($F \geq 4.05$, df 3 and 40)
**Significant at .01 level ($F \geq 7.21$, df 3 and 40)

Table 5

Relationship of Preservice Teachers' Learning Styles with Attitude When Variables of Preservice Teachers' Sophomore Grade Point Averages and Composite ACT Scores and Tutee's Intelligence are Controlled

Variables	Multiple R	R^2	R^2 Change	Simple r	F
Forced					
Tutee's I.Q.	.2894	.0838	.0838	.29	1.80
Sophomore Grade Point Average	.3437	.1181	.0343	.14	.40
ACT Score	.3896	.1518	.0337	.20	4.77*
Open					
Conditions of Learning: Structure (Clear Organization)	.5369	.2883	.1365	.35	5.17*
Mode of Learning: Listening	.6058	.3670	.0787	.24	5.47*
Conditions of Learning: Achievement (Working Independently)	.6261	.3920	.0250	-.23	.45

*Significant at .05 level ($F \geq 4.05$, df 3 and 40)

REFERENCES

Aldridge, M.N., et al. Practicum with four year graduated involvement: A teacher education model. Paper presented at the National Conference of the Association of Teacher Educators, Dallas, Texas, 1981. (ERIC Document Reproduction Service No. 202 846)

Barbe, W. & Swassing, R. H. Teaching through modality strengths: Concepts and Practices. Columbus, OH: Zaner-Blaser, Inc., 1979.

Borup, J. H. The validity of the American College Test for discerning potential academic achievement levels--ethnic and sex groups. The Journal of Educational Research, 1971, 65(1), 3-6.

Braam, L. S., & Oliver, M. E. Undergraduate reading education. The Reading Teacher, 1970, 23(5), 426-428.

Brooks, M. Teaching and Learning Styles, 1979. (ERIC Document Reproduction Service No. ED 168 661).

Canfield, A. A. Learning Styles Inventory. Ann Arbor, MI: Humanics Media, 1980.

Carney, M, & Geis, L. Reading ability, academic performance, and college attrition. Journal of College Student Personnel, 1981, 22, 55-59.

Claxton, C. S., & Ralston, Y. Learning styles: Their impact on teaching and administration (AAHE-ERIC/Higher Education Research Report No. 10). Washington, D.C.: American Association for Higher Education, 1978.

Domino, G. Interactive effects of achievement orientation and teaching style on academic achievement. Journal of Educational Psychology, 1971, 62, 427-431.

Dunn, R. Another look at individualized instruction. Phi Delta Kappan, 1978, 59, 400-402.

Dunn, R. & Dunn, K. Learning style as a criterion for placement in alternative programs. Phi Delta Kappan, 1974, 56, 275-278.

Dunn, R. S., & Dunn, K. J. Learning styles/teaching styles: Should they...can they...be matched? Educational Leadership, 1979, 36, 238-244.

Eckert, M. S. Achievement, aptitude and attitudinal variables related to preservice teachers' performance on criterion-referenced tests in reading (Doctoral dissertation, Mississippi State University, 1983). Dissertation Abstracts International, 1983, 44, 667A. (University Microfilms No. DA 8317582)

Emmer, E. T. Do pupils affect teachers' styles of instruction? Educational Leadership, 1974, 31, 700-704.

Farr, B. J. Individual differences in learning: Predicting one's more effective learning modality (Doctoral dissertation, Catholic University of America, 1971). Dissertation Abstracts International, 1971, 32, 1332A. (University Microfilms No. 70-20, 355)

Fritschel, A. L. Elementary pre-school teaching center: A case study, 1975. (ERIC Document Reproduction Service No. ED 117 080)

Gregorc, A. F. Learning/teaching styles: Potent forces behind them. Educational Leadership, 1979, 36, 234-236. (a)

Guszak, F. J., & Mills, W. R. Preparation of a reading teacher: A program metamorphosis. Journal of Reading, 1973, 16, 444-448.

Halpin, G., Halpin, G., & Schaer, B. B. Relative effectiveness of the California Achievement Tests in comparison with the ACT assessment, college board Scholastic Aptitude Test, and high school grade point average in predicting college grade point average. Educational and Psychological Measurement, 1981, 41, 821-827.

Hamlin, W. D. Analysis of primary information for predicting student success (Doctoral dissertation, Wayne State University, 1974). Dissertation Abstracts International, 1975, 35, 7770A. (University Microfilms No. 75-13, 327)

Johnstone, J. R. The relationship between supervisor evaluation of clinician performance in a reading clinic and clinician self-report; teaching experiences; grade point average; Miller Analogies Test; and knowledge of reading (Doctoral dissertation, University of Maryland, 1977). Dissertation Abstracts International, 1978, 38, 4108A. (University Microfilms No. 77-29, 132)

Kaplan, R. M. Nader's raid on the testing industry: Is it in the best interest of the consumer? American Psychologist, 1982, 37(1), 15-23.

Kelly, E. F., Holloway, R., & Chapman, D. W. Prediction of Achievement for high school students in college courses. Journal of Educational Research, 1981, 75(1), 5-14.

Lenning, O. T., Munday, L., Johnson, O. B., Vander Well, A. R., & Brue, E. J. Nonintellective correlates of grades, persistence and academic learning in college. Iowa City, IA: The American College Testing Program, 1974.

Mehrens, W. A., & Rogers, B. G. Relations between grade point average and collegiate course grade distributions. Journal of Educational Research, 1970, 64, 169-171.

Ommen, J. L., Brainard, S. R., & Canfield, A. A. Learning preferences of younger and older students. Community College Frontiers, 1979, 7(3), 29-33.

Phillips, D. H. A study of the demographic, developmental, and learning style characteristics of preservice education students (Doctoral dissertation, Ohio State University, 1982). Dissertation Abstracts International, 1982, 43, 1510A. (University Microfilms No. 82-22, 158)

Pizzo, J. S. An investigation of the relationships between selected acoustic environments and sound, an element of learning style (Doctoral dissertation, St. John's University, 1981). Dissertation Abstracts International, 1981, 42, 2475A. (University Microfilms No. 8119620)

Posey, J. M. Learning style, achievement, aptitude, and attitudinal variables related to preservice teacher's performance on criterion-referenced tests in reading. Unpublished doctoral dissertation, Mississippi State University, 1983.

Rowan, R. W. The predictive value of the ACT at Murray State University over a four-year college program. Measurement and Evaluation in Guidance, 1978, 11(3), 143-149.

Slosson, R. L. Slosson Intelligence Test. East Aurora, NY: Slosson Educational Publications, Inc., 1974.

Tiller, M. S. Identifying effective prospective elementary teachers with Piagetian cognitive level, GPA and ACT (Doctoral dissertation, Northeast Louisiana University, 1981). Dissertation Abstracts International, 1981, 42, 2088A. (University Microfilms No. 8124645)

Turner, R. L. The value of variety in teaching styles. Educational Leadership, 1979, 36(4), 257-258.

Wingard, J. R., & Williamson, J. W. Grades as predictors of physicians' career performance: An evaluative literature review. Journal of Medical Education, 1973, 48, 313-322.

Wiviott, S. P., & Pollard, D. S. Background, section, and student evaluation variables as predictors of achievement in a college course. The Journal of Educational Research, 1974, 68(1), 36-42.

Wollenberg, J. P. Personal communication. February, 1983.

Young, A. D. Classroom climate and class success: A case study at the university level. The Journal of Educational Research, 1977, 70, 252-257.

Zarate, N. Predictive factors of academic success for freshmen of a multicultural university (Doctoral dissertation, Mexico State University, 1976). Dissertation Abstracts International, 1977, 37, 1381A. (University Microfilms No. 76-19, 687)